DOCUMENT RESUME

ED 160 273 RC 010 747

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TITLE How New Manufacturing Industry Affects Rural Areas--A Synthesis. Rural Development Synthesis Series No. 1A.

INSTITUTION Southern Rural Development Center, State College, Miss.
SPONS AGENCY Cooperative State Research Service (DOA), Washington, D.C.; Kentucky Univ., Lexington.
PUB DATE Sep 78
NOTE 68p.
AVAILABLE FROM Southern Rural Development Center, Box 5406, Mississippi State, Mississippi 39762 ($1.00)

EDRS PRICE MF-$0.83 HC-$3.50 Plus Postage.
DESCRIPTORS *Community Benefits; Community Change; Community Characteristics; *Decision Making; Economic Disadvantagement; Employment Level; Income; Industry; Jobs; Literature Reviews; *Local Government; *Manufacturing Industry; Migration; Population Trends; *Quality of Life; *Rural Areas; Rural Development; Rural Family; Rural Farm Residents; Social Change; Taxes; Values

ABSTRACT

In assessing impacts of rural industrial development, it is important to include not only economic impacts but the interface between organizational, political, and behavioral aspects with economic aspects. Though effects depend on a variety of economic and institutional circumstances, several observations can be made about how new manufacturing industry affects not only rural area economies but also social and political systems. Many of the employment and income benefits to local residents "leak" out to surrounding regions, reducing cost effectiveness in terms of raising incomes of local people, decreasing poverty, reducing unemployment, and improving income distribution. Over the long term, industrialization can cause loss of social cohesion, depersonalization of human relations, and replacement of the family as a primary functional social unit. Local communities may lose local autonomy, especially when absentee-owned branch plants are involved, influencing community capacity to upgrade human resources (schools, services, cultural amenities) and improve citizens' economic opportunities. Possible alternatives to traditional industrialization may be home- or community-owned ventures, enterprises employing hard-core unemployed, or sharing of industrial park and utility investment costs among local government units to cover benefit leakages. (RS)

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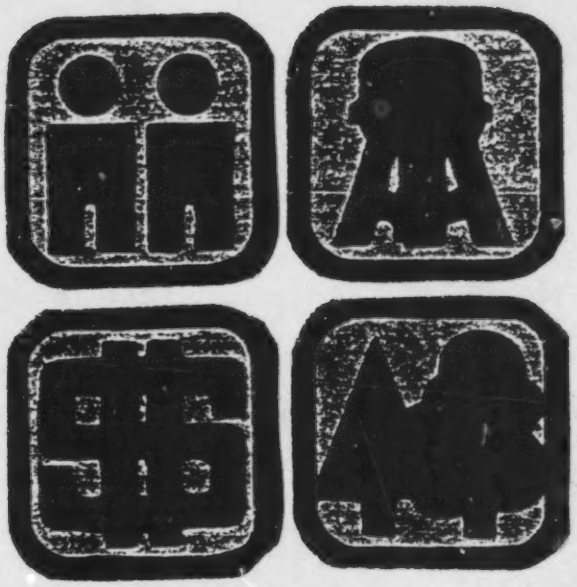
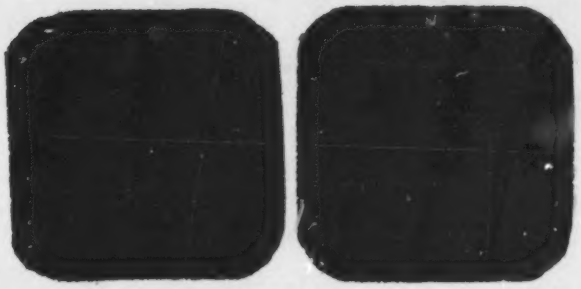


SYNTHESIS

HOW NEW MANUFACTURING INDUSTRY AFFECTS RURAL AREAS



RURAL DEVELOPMENT SERIES NO. 1A
SOUTHERN RURAL DEVELOPMENT CENTER

FOREWORD

Under the sponsorship of the Southern Rural Development Center, ten teams of researchers and educators throughout the Southern region have devoted the past year to a synthesis of timely and practical research in selected areas of interest.

These ten Functional Networks, each under the leadership of a Center Associate, have prepared larger annotated bibliographies of important citations uncovered in their investigations. These synthesis papers follow the bibliographies, and are intended to relate the useful applications to be drived from their survey of the literature.

More than just summary documents or reports, these synthesis papers can serve as a starting point for rural development planning and projects from the national to the local level. They assess the current state of knowledge and pinpoint techniques and methods for application of these findings.

This paper is the second synthesis prepared by the Network on Industrialization, under the leadership of Dr. Eldon D. Smith at the University of Kentucky. It speaks more directly to the affects that new industry has on rural areas. The Network's bibliography and additional copies of the two synthesis papers are available from the Southern Rural Development Center.

William W. Linder
Director
Southern Rural Development Center

A Synthesis

How New Manufacturing Industry Affects Rural Areas

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Industrialization of Rural Areas

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This review is the product of an SRDC functional network with chairmanship at the University of Kentucky. A contractual agreement between the SRDC, the University of Kentucky, and the Cooperative State Research Service of the U.S. Department of Agriculture provided for this participation and cooperation.

One of a series of research reviews prepared by functional networks for the Southern Rural Development Center, Mississippi State, Mississippi.

Preface

This review attempts to assess the state of knowledge relating to the impacts of rural industrial development on rural areas and rural people. It both interprets what is known, i.e., the available evidence about industrialization as it pertains to the welfare and development of rural areas, and identifies sources of deficiencies in the received body of information. Deficient research techniques, as well as inadequately formulated research problems, which are root causes of the gaps and irrelevancies, are identified insofar as possible, particularly with regard to the economic impact information.

In reviewing the literature, it quickly becomes apparent that this task takes one well beyond the conventional boundaries of economics. In several respects, the interface between the organizational, political, and behavioral aspects and the economic aspects is the most important area if judged in terms of a long-run development strategy perspective. The basis of this is obvious upon thoughtful reflection. If citizens in either large or small areas lose control over the economic and social processes that affect them, knowledge of actions that would improve their lot will be of little avail to them. It is my view that members of the economics profession need to be aware of these longer-run, indirect effects of economic policy, difficult as they are to quantify and even to conceptualize in rigorous terms.

It was with this in mind that Dr. Gene Summers was invited to prepare a review of those aspects largely beyond the conventional domain of economics. Dr. Summers and his colleagues in the Center for Applied

Sociology have had a most active and excellent program of research on rural industrialization for several years. They are perhaps more conversant with relevant literature pertaining to the subjects of social, demographic and organization impact than any other group of scholars. He kindly consented to bring to this brief report some of his broad knowledge and deep insights. This has added important scope to the report while freeing me to concentrate more on the conceptual and empirical materials relating specifically to economic impact and locational determinants of industry affecting rural areas. As chairman of the SRDC Network on Industrialization of Rural Areas, I wish to express my sincere gratitude for his contribution.

It was our original intention to stylistically blend the two contributions; however, our geographic separation and conflicting professional responsibilities have made this impracticable to a very large extent. Therefore, it will be noted that Part I is primarily my own contribution, while Part II is primarily that of Dr. Summers.

A majority of the references in Part I were drawn from a bibliography prepared as the initial phase of the SRDC funded effort (Industrialization of Rural Areas, Southern Rural Development Center, Rural Development Bibliography series No. 1).* However, additional research materials were found in the course of preparation of this paper, some of which have been included here.

We hope that this effort will be useful to fellow professionals and action agency personnel. We have found it a rewarding educational

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*Undated; published in 1977.

experience, one that has forced us to come to grips with several difficult issues only vaguely recognized heretofore.

Eldon D. Smith
University of Kentucky
June 1978

How New Manufacturing Industry Affects Rural Areas

Eldon D. Smith and Gene F. Summers*

Introduction

The interest in rural industrialization among politicians, scholars, and businessmen is not new, and is probably as old as the industrial revolution in Western Europe more than two centuries ago. The merits of industrial decentralization and the development of industry in predominantly rural areas have been public issues for a very long time, and industrial growth has been promoted by local governments and private organizations for several decades.[1] In the past two decades especially, private and local governmental efforts to develop industry have been reinforced by public action at state and national levels.[2]

Such action seems to have been only modestly effective until the late 1960s and 1970s. However, rural industrial development no longer runs against a tide of further urban industrial growth concentration. Problems in our central cities, improved transportation and communication systems and perhaps other factors appear to have shifted the competitive position of rural areas in a favorable direction vis a vis major metropolitan areas. Rates of growth of manufacturing industry outside the concentrated industrial belt of the northern tier of states, and even outside the major cities of the South, have become greater than within them.[3]

For large numbers of rural areas, it appears that industrial development is now a viable alternative, even if not for all of them. But it will not happen, in most cases, spontaneously. And even if it were to occur spontaneously, it would not be without costs, most of which are only vaguely comprehended. Therefore, before rural areas commit themselves and their resources to industrialization, it will be important for them to raise basic questions about the effects of industry on rural areas. This will be especially important for areas with limited resources and underutilized manpower. What, indeed, will industrial development do for rural people or to them?

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*Eldon D. Smith is Professor of Agricultural Economics, University of Kentucky; Gene F. Summers is Professor of Sociology, University of Wisconsin-Madison. We wish to acknowledge helpful comments of several colleagues. Mrs. Irene Hultman provided excellent editorial assistance.

Is industrial development of presently lagging rural areas an engine of general economic development? Or is it, like some of the promising programs of the past, a trap that will help the rich get richer and further disadvantage lagging regions and groups? Who will benefit? Will some lose? Will the benefits go primarily to affluent, productive, and economically secure people? Will it leave behind those who are now outside the mainstream of the economy, keeping them still in poverty and still dependent upon public support?

Can national, state and local governments do more to harness the economic potential that industrial development allegedly offers to rural areas? Can they use it to turn presently unproductive, impoverished and dependent people into productive, self-supporting social assets? What of the welfare of the aged, infirm, and others not qualified for employment in modern industry? Will they be better or worse off?

Will increased industrial activity broaden the tax base of rural areas and improve financing of schools, sanitation, recreation and other services and/or reduce the public assistance burden of those unable to care for themselves? Or will the financial burdens imposed by industry be greater than the additions to public revenue? On what will this depend?

Will rural people be dominated politically by external industrial interests and lose control over their own governments and destinies, as is alleged to have been true of the mill towns and mining camps of earlier eras? Or will industrial management inject into community political life the catalytic agent of a progressively oriented, civic-minded leadership?

Will new economic opportunity raise hopes and aspirations, increase motivation for self-improvement, and instill community pride? Or will the life style, social structure, ethics, and social morality of the Jeffersonian dream be replaced by the materialism, alienation, crime, and corruption of our urban ghettos? Is this 'price' too high?

These are the types of questions being asked by responsible rural leaders, by their representatives in national, state, and local governments, and by members of volunteer organizations. Decisions are being made, for better or worse, based on personal judgments regarding these issues. In view of this, it seems appropriate to bring together, in systematic form, available research information relevant to these questions, which is the purpose of this Review article. This paper will be confined to the impact of manufacturing industry, and will draw upon published research as a basis for identifying factors of practical significance to action agencies and as a source of information about these factors. The various service and extractive industries will be ignored in the interests of brevity. In a companion paper, information will be developed regarding the types of communities that seemingly offer the greatest potential for industrial development of various kinds, and the actions that can be effective in improving this potential.

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PART I

HOW NEW INDUSTRY AFFECTS RURAL AREA ECONOMIES*

The general economic impact, the number of jobs created, and total increases in net incomes to the community set outer limits on benefits that may be derived from industrial activity in the short run. Even an equitable distribution of a small amount of income benefits no one very much. Moreover, the size of the income "pie," along with other considerations, determines how much income can be invested in the development of the physical facilities, labor skills, and other factors required for future income growth. Therefore, we initially evaluate the research evidence on the short-run effects of new industry on total income and employment of rural communities.[4]

Measurement of Direct and Indirect Effects on Income and Employment

While action agencies primarily depend on payrolls and the number of jobs in new industry to indicate aggregate economic impact, the multiplier concept provides the bases for more complete assessments by researchers; it also is occasionally used by agency personnel. When properly applied, such measures capture more completely and accurately: (1) the combined direct payroll and employment effects; (2) increased returns to local resource owners; and (3) jobs and additional payrolls that result from increased spending of payroll income. They also capture the effects of expenditures for goods and services used in the plant and additional transportation and other services employed in distribution, storage, or further processing.[5]

Most multiplier statistics are developed for use in appraising effects of previous expansions of employment and payrolls through industrial growth. However, a more constructive potential use is that of predicting the effects of future industrial expansion. In combination, income and employment multipliers may often provide a basis both for assessing the magnitude of income and employment increases and for providing indications of the distribution of benefits among members of the community or region. An example is the analysis by Garrison (1967), who found that income multipliers were considerably higher than employment multipliers for expanding small towns in Kentucky. In explanation, he indicates that local service industries had operated at less than full capacity, resulting in expansion of property income and profits but with very little secondary increase in personnel or payrolls. Evi-

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*Primary responsibility for drafting Part I has been assumed by the senior author, Eldon D. Smith.

dently personnel had been underemployed prior to the expansion and their services were simply used more intensively thereafter. Such effects can be expected where outmigration has been rapid. A similar result might occur if a plant employed a very high proportion of high-salaried technical and skilled manpower.

Types of Multiplier Estimates

While in economic discourse we often speak generally about "the employment multiplier," "the income multiplier," or even "the multiplier," there are many different types of multipliers. They have varying degrees of technical sophistication, as well as having varying scope and relevance for different populations, political jurisdictions, and types of problems. To professionals, this observation may seem to be a redundant commonplace. However, a review of impact research documents reveals the fact that methods of estimation are extraordinarily diverse; further, with only rare exceptions they are designed without explicit reference to either a particular user clientele or problem.

Reflecting in part this variety of computational methods and geographic scope, the size of both income and employment multipliers reported in research literature varies greatly. Statistics from several studies are assembled in Table I and grouped according to the principal techniques of estimation--economic base and input-output (along with variants of each of these two techniques). The extreme variability in these statistics indicates, if nothing else, that statements by promotional agencies, politicians, and others that each new manufacturing job generates about one or two nonmanufacturing jobs may have very dubious factual bases. Therefore, while familiar material to many professionally trained readers, it seems essential to briefly and critically review these two main techniques as background for later discussion.

Economic base methods.--The simplest techniques of computation are called "economic base" methods. This name reflects the assumption that computations using the composition of income and employment in the local area economy--its economic base--will provide an indication of the number of jobs and the amount of income that will result when a new industry is added to it. Suppose, for example, that one-fourth of the community's employment and income is from consumer goods and services industries, local governmental institutions, and the like, which supply locally employed people and their families as well as local industries selling their output outside the community. In the usual application of the traditional cross-sectional economic base concept, it is assumed that the proportion will remain the same if a new "basic" industry is established, a "basic" industry being defined as one that sells its output to customers outside the community. Similarly, it is assumed that, if one-fourth of the current employment and income is derived from establishments that provide business services, materials, and components to the "basic" industries, that proportion will remain the

same; that is, it is considered as a fixed proportion. In both cases, this implies that the same ratio of direct to indirect employment and income will apply to new industries as well as to existing industries.

The "incremental" base (or "difference") method which compares changes in the employment or income of "basic" and "non-basic" industries attempts to allow for an upward bias in estimates of short-term impact, which occurs when one uses the traditional cross-sectional base method. The studies by Garrison (1967), shown in items 19 through 22 in Table I, (pp. 9-12) compare the results of applying the traditional cross-sectional base methods and the "incremental" method, as well as comparing the traditional cross-sectional estimates at six-year intervals. The results of the "incremental" or "difference" method are quite different from the traditional method and obviously are more sensitive to data inadequacies, special circumstances, and disturbances of the local economy.[6] In addition, there is always some doubt about whether the statistics from the incremental method relate to changes over a sufficient period to allow other sectors to fully adjust to the economic changes brought about by the new industry, as they tend to be relatively short-run estimates. They are applicable to changes occurring between any pair of years, although they are most easily applied to changes in employment or income between census years for which employment data are relatively complete.

An additional method employs regression analysis techniques. For example, in recent research reported by Braschler (1973) and Braschler and Kuehn (1976), large numbers of county employment estimates are analyzed by regression techniques to determine the combined direct and indirect employment effects of the "basic" component of each industry group (e.g., agriculture, mining, manufacturing, transportation, etc.). These can be applied, presumably, to counties in any similar economic region.

Limitations of base methods.--These methods can be unreliable unless carefully applied or adapted to local conditions. For example, commercial farming is a "basic" industry selling most of its output outside the local economy. A wide variety of goods and services is often purchased locally such as feed, pesticides, fertilizer, machine repair services, and tractor fuel, among others. Consequently, for local commercial agricultural areas with favorable man-to-land ratios, the multiplier is usually quite high relative to those types of manufacturing industries that import most of their materials and components. Thus traditional base multiplier estimates would tend to be high in primarily large-scale commercial agricultural areas, or in areas where other existing industries depend heavily on locally supplied materials and services as well as labor. That is, the traditional base multiplier methods would result in unrealistically high estimates of total employment and income changes if in such areas they were applied to manufacturing industries of the more usual types, which import most materials into the community and provide most of their own services.[7] The assumed similarities of the effects of all "basic" industries (those selling their output outside the community) is obviously invalid in such cases. For example, Deaton (1975) reports that local industrial pallet

manufacturing operations created more jobs in timber cutting, hauling, and sawmill operations than in pallet manufacturing, implying a very high employment multiplier.

Second, the usual applications of "base" methods do not relate the measure to the relevant population, i.e., the population absorbing the costs and risks of industrial development efforts. In most cases, local efforts directed toward industrial development are justified on grounds of creating jobs and greater incomes for local residents. The local government components of development costs and costs of public services to support the industry are largely borne by people residing in a local tax jurisdiction. But, if a large proportion of jobs is absorbed by commuters or people who move into the community, the local effects of industry in alleviating underemployment and improving incomes are severely reduced. Without special adjustments to take these factors into account, the base multipliers all tend to overstate impact on previous local residents, although not necessarily for the residents of the broader commuting area or multicounty region. However, as we will later show, some adjustments could be made allowing for this, thus providing more realistic assessments of benefits to local residents.

Third, there is no obvious way of knowing whether these statistics apply to a long or short adjustment period. For example, the size of the base ratio, i.e., the ratio of employment or income in "basic" industries (selling outside the community) to "nonbasic" firms (servicing a local market only) will depend on whether basic industries have been expanding rapidly or whether the situation in the community has been static. The reasons are that: (1) some commuters eventually "move to town", thus adding more businesses to local retail service establishments than when they were commuters purchasing most of these services elsewhere; and (2) local establishments may develop the capacity to service local industry, once a volume of business sufficient to justify necessary investments has occurred (for example, repair services for heavy machinery, laundry and repair services for factory uniforms and towels, etc.). Thus, the ratio would tend to be larger in a relatively static community than in one already experiencing growth.

However, it is clear that the cross-sectional multipliers apply to longer run periods than data from a "differences" analysis of changes limited to periods between census years or shorter periods. Supportive of this latter view is the fact that multiplier values shown in Table 1 for all classes of basic industry were larger for the cross-sectional than for the differences analysis.[8]

Input-output methods.--Input-output multipliers are based on statistics showing the volume of goods and services from each defined industry sector that is used in every other class of industry, what proportion is imported, and what proportion is supplied locally from each local sector. This allows the analyst to trace out statistically the unique impact on each individual sector for each class of industry, the degree

of precision depending on the amount of detail in the data, the uniformity of input requirements within each industry grouping, and the rate of change in technology for all plants in each class or sector. Since labor is an input, both employment and income multipliers can be computed.

The "from to" model employed by Shaffer and Tweeten (1974) is very similar except that it is based on "dollars in and dollars out" rather than physical units and obviates the computation of employment multipliers without additional data.

These methods are potentially much more precise than base methods as tools for estimating overall effects of growth in particular industries. They also can provide a much more detailed picture of how much each individual sector of the local economy will be affected by a particular autonomous change. However, their precision is dependent on supplies of highly detailed data which is both accurate and up-to-date and computations are sufficiently complex that relatively few communities, counties and multicounty areas will find them practicable.

Moreover, as with base multipliers, input-output multipliers for small areas are biased upward as estimates of the impact on previous local resident populations, unless adjustments are made for leakages--immigrant absorption of new jobs and incomes, reduced outcommuting, greater incommuting, and nonreplaced job shifting.

Quantitative Importance of Leakages on Local Multipliers

The foregoing discussion has focused on the limitations of the main techniques for computing multipliers, especially for purposes of predicting employment and income impacts on previous residents of small areas. However, it is not suggested that these or other types of multiplier computations are useless. It means, instead, that the particular procedure used should be adapted to purposes of the user and to the target population. For example, if the purpose is to assist county level officers in pursuing the interests of their constituents, intercounty commuting and county level immigrant absorption of income and employment must be treated as leakages if they are quantitatively important.

Incommuting and immigration.--The importance of these leakages to local benefits can be relatively great. For example, for eastern Oklahoma areas, commuters from outside the municipality (community) account for 30.8 percent of all employees of the 12 plants studies, while those from outside the county account for 10.5 percent (Shaffer and Tweeten, 1974). Similarly, unpublished data reported by management personnel of recently established plants in Kentucky and Tennessee indicate that about 57 percent of workers lived outside the municipality

and 20 percent commuted from outside the county.* While specific computations have not been made, the proportion of jobs absorbed by in-migrating personnel (mostly key management, professional, and skilled worker categories) appears to be quite small, perhaps less than 3 percent.

Job shifting.--Job shifters whose prior jobs are not refilled by unemployed persons are another leakage; added income is reduced by the returns previously received on the vacated jobs and added employment is reduced by the number of such jobs that are not refilled. Economic base ratios (multipliers) computed from cross-sectional data would not reflect this leakage if applied to expected basic employment in a new plant, since ratios relate the total number of jobs in the community economy to the number of jobs in the basic sectors. But unrefilled jobs of job shifters in either basic or nonbasic sectors are usually not excluded when computing multipliers. Thus, when applied to direct employment only in a particular plant, total employment effects are overestimated, since increases in total basic and nonbasic employment in other firms would be reduced if vacated jobs were not refilled.

The exact magnitude of this nonreplaced job shifters leakage is not known except in the case of the Oklahoma studies (Shaffer and Tweeten, 1974, p.9), which revealed an estimated 19.3 percent of jobs filled by job shifters whose jobs had not been refilled. While direct evidence is lacking, it seems likely that this type of leakage would be particularly large in areas where a significant proportion of the population is underemployed on small, low-income farms. Observation suggests that many such low-income farmers maintain their farm residence and either operate their farms on a part-time basis or rent their land to others. Thus, while the added basic income from industrial work may be almost as great as though these farmers had not been previously employed, the number of jobs may not be increased and the employment multiplier might be reduced considerably by such adjustments.

Outcommuting.--Reduced outcommuting often results if local job opportunities improve, making local jobs of equal or higher pay more attractive. When this occurs jobs that might otherwise be occupied by unemployed people in the community are taken by the former outcommuters, thereby decreasing local resident employment and income impact. The net income effect on the community of a former outcommuter being employed locally at comparable wages is equal to the reduction of costs of travel plus possible increased local expenditures.

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*Unpublished data from regional Project S-96 collected under direction of the senior author and Dr. Brady Deaton, University of Tennessee, Department of Agricultural Economics and Rural Sociology.

None of the studies examined in this review has in any way taken such changes in outcommuting into account. Yet, Van Veen's (1977) regression analysis of outcommuting in Kentucky counties suggests than an increase in local employment of 100 jobs would result in a decrease in outcommuting equal to 40 percent of increases in manufacturing employment. Garrison's 1967 study is the only one making explicit reference to outcommuting as a source of basic income and employment; he assumes it to be constant, irrespective of increases in local employment.

Analysis of Computational Approaches

Unfortunately, with only a few exceptions, such as Shaffer and Tweeten's (1974) study, the computational approaches are inconsistent with the purpose of analyzing the impact on any particular target population, either because of a failure to take into account the leakages described above, or because of a failure to deal with them appropriately. For example, in Braschler's (1973) regression approach, employment and income leakages across county borders were not subtracted in the multiplier estimation techniques; consequently, effects of increases in employment in particular industries on local residents were overestimated and reflected employment impacts diffused to a much larger region. As such, they were not relevant for purposes of investment decisions by resident voters.

Similarly, multipliers that include leakages across county or municipal borders do not adequately represent regional employment impacts, since they fail to capture the jobs that are generated in locations outside county borders in various linked industry. That is, if the multiplier relates only the change in number of total jobs in a county to the change of one job in basic industries in that same county, it fails to take into account the county of origin of the people who acquire these jobs. At the same time, it does not include secondary employment created outside county boundaries, which is necessary if the statistics are to adequately represent regional impact.

An example of this latter problem is found in an Appalachian Kentucky wood-based industry observed by the senior author. All direct employment occurs in a single county but many of the jobs are held by commuters from other counties. Hence, the inclusion of commuters would overstate the number of jobs created and allocated to local people, reflecting, in part, an extracounty or regional direct (basic) employment impact. However, the kiln-dried hardwood used in the factory is logged, sawed, transported, and dried by firms located in other counties. Thus the secondary regional employment effects would not be fully reflected in the county statistics of the county where the furniture factory was located. The "county" multiplier would thus overstate county impact and understate regional impact. It would be a hybrid applicable to neither county nor region.

For the same reason, the Braschler-Kuehn (1976) regression approach

using economic base statistics may not provide estimates applicable to a target population. This approach employs both cross-sectional and "difference" analysis. The differences analysis uses change in basic employment in each of several sectors between census years as independent variables; the dependent variable is change in total employment in the county. While this combined approach appears to yield statistically valid generalizations about the connections between basic and total employment for large groups of counties and large (SIC) aggregates of industries, its usefulness and reliability as a decision-making tool for individual communities is questionable.

Primary reasons for this limited applicability are failure to: (1) take into account the effects of unique characteristics (other than population) of the community on the multiplier; (2) take into account differences in linkages among manufacturing industries (input-output analysis of the particular community would remove this problem); (3) exclude employment of incommuters and inmigrants from the estimated impact on local residents; (4) treat reductions in incommuting as a leakage; (5) recognize as a leakage unfilled positions formerly held by job shifters; and (6) take into account multiple job holding (for employment multipliers). Finally, the length of run to which the statistics apply is not sharply defined. If the larger communities are growing more rapidly than the smaller ones, they will tend to represent relatively short run impacts; if all population size classes are relatively static, they will represent relatively long run impacts; declining communities would tend to have impacts resembling those of rapidly growing communities with lagging service sectors since they usually have excess capacity.

None of the studies of communities and counties that have been reviewed take into account all of the identified sources of leakages. Shaffer and Tweeten (1974) come closest, having ignored only reduced outcommuting and inmigrant absorption of local manufacturing jobs. Therefore, it is not surprising that in only one of the plants they studied did the local (short-run) income multiplier estimate exceed a value of 1.0.[9]

The employment and income multipliers reported by Garrison (1967) for Kentucky small towns are much higher on the average. However, if we assume that incommuting was at rates found in recently established Kentucky plants (30 percent)* and unreplaced job shifters absorbed 20 percent of new jobs (as in Oklahoma), the Garrison multipliers would be severely reduced. Based on these assumptions, employment multipliers would average 0.63 for municipalities and 0.99 for counties.

The corroborative information noted above reinforces the conclusion that short-term employment multipliers probably average less than 1.0 for local residents of counties, income multipliers being at most slight-

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*From Project HA-96, Department of Agricultural Economics, University of Kentucky, collected under direction of the senior author.

Table 1.--Summary of Local Area Employment And Income Multipliers for Manufacturing Industry in Rural Areas

	Location, Type of Product, and Area Unit	Type of Multiplier And Estimating Technique			
		Employment		Income	
		Economic Base	Input-Output	Economic Base	Input-Output
1.	Eastern Oklahoma-Electronic Companies-Municipality[1/]				0.79
2.	Eastern Oklahoma-Public Building Furniture-Municipality[1/]				0.84
3.	Eastern Oklahoma-Bottled Soft Drinks-Municipality[1/]				0.87
4.	Eastern Oklahoma-Wood Household Furniture-Municipality[1/]				0.59
5.	Eastern Oklahoma-Upholstered Furniture-Municipality[1/]				1.10
6.	Eastern Oklahoma-Canned Fruit, Vegetables, etc.-Municipality[1/]				0.84
7.	Eastern Oklahoma-Market Preparation of Farm Products-Municipality[1/]				0.80
8.	Eastern Oklahoma-Public Building Furniture-Municipality[1/]				0.65
9.	Eastern Oklahoma-Dehydrated Food Products-Municipality[1/]				0.75
10.	Eastern Oklahoma-Heating Equipment Except Electrical and Warm Air Furnaces-Municipality[1/]				0.46
11.	Eastern Oklahoma-Fabricating Structure Steel-Municipality[1/]				0.80
12.	Eastern Oklahoma-Pumps and Equipment-Municipality[1/]				0.71
13.	Oklahoma-All Manufacturing-State[2/]				2.92
14.	Indiana-Aluminum Furniture-Municipality[3/]		1.02		0.33

1/Shaffer & Tweeten (1974).

2/Tweeten (1968).

3/Wadsworth and Conrad (1966).

(Continued)

Table 1.--Summary of Local Area Employment And Income Multipliers for Manufacturing Industry in Rural Areas (Continued)

	Location, Type of Product, and Area Unit	Type of Multiplier And Estimating Technique			
		Employment		Income	
		Economic Base	Input-Output	Economic Base	Input-Output
15.	Indiana-All Manufacturing-County[4/]				
	Total	1.44			
	Former Residents Only	0.94			
16.	Arkansas-Shirts-Multicounty Areas[5/]	1.11		1.02	
17.	South Carolina-Brick-Multicounty Area[6/]	1.36			
18.	Kentucky-Bedding-County[7/]	1.06			
19.	Kentucky 1963-Shoes & Auto Trim-County A[8/]	1.31		1.44	
	1958-Shoes & Auto Trim-County A	1.28		1.43	
	Change 1958-1963	1.91		1.46	
20.	Kentucky 1963-Yarn-County B[8/]	1.59		1.74	
	1958-Yarn-County B	1.51		1.75	
	Change 1958-1963	3.81		1.73	
21.	Kentucky 1963-Clothing-County C[8/]	1.35		1.32	
	1958-Clothing-County C	1.17		1.33	
	Change 1958-1963	(Negative)		1.43	

[4/] Wallace and Stevens (1966)
[5/] Jordan (undated)
[6/] McElveen (1970)
[7/] Hoover (undated)
[8/] Garrison (1967

(Continued)

Table 1.--Summary of Local Area Employment And Income Multipliers for Manufacturing Industry in Rural Areas (Continued)

Location, Type of Product, and Area Unit	Type of Multiplier And Estimating Technique			
	Employment		Income	
	Economic Base	Input-Output	Economic Base	Input-Output
22. Kentucky 1963-Whiskey Barrells, Electronic Communications Equipment, Clothing-County D[8/]	1.35		1.32	
1958-Whiskey Barrells, Electronic Communications Equipment, Clothing-County D	1.45		1.55	
Change 1958-1963 [8/]	1.65		2.02	
23. Kentucky 1963-Clothing County E[8/]	1.47		1.67	
1958-Clothing-County E	1.45		1.55	
Change 1958-1963 [9/]	1.07		1.26	
24. Texas-Rio Grande Valley-Textiles-Multicounty[9/]		1.48		
25. Texas-Rio Grande Valley-Chemicals-Multicounty[9/]		1.96		
26. Oregon-Aluminum Metal-State[10/]		1.53		
27. Oregon-All Manufacturing[10/]		2.61		
28. Ozarks States-All Manufacturing-County[11/]				
Counties under 20,000 population	2.076			
Counties over 20,000 population	2.103			

[9/] Adams and Holloway (undated).

[10/] Collins, et al. (1973).

[11/] Braschler (1973).

(Continued)

Table 1.--Summary of Local Area Employment And Income Multipliers for Manufacturing Industry in Rural Areas (Continued)

Location, Type of Product, and Area Unit	Type of Multiplier And Estimating Technique			
	Employment		Income	
	Economic Base	Input-Output	Economic Base	Input-Output
29. Mississippi-Tissue Paper-Multicounty Previous Residents[12/]				
Independently Calculated	0.75			
Total	1.11			
30. Appalachia-Resource Development Projects-County[13/]				
Counties 1000-1099 population	1.5-1.9			
Counties 20,000-49,999 population	2.0-2.5			

[12/] Crecink (1970).

[13/] Gadsby (1968).

ly greater than 1.0. However, it is evident that local resident impacts vary over a broad range even when identical computational procedures are employed.

As noted above, the "adjusted" Garrison (1967) estimates are remarkably similar in range and magnitude to the Shaffer-Tweeten (1974) estimates (0.59 - 1.10 versus 0.63 - 0.99). While comparisons of statistics for the same period and the same communities would be required to verify this, the close comparability of the base multipliers and input-output ("from to") estimates in these two studies suggests the possibility that the two approaches in many cases may yield nearly comparable results, although if appropriate data are available input-output analyses can capture the unique linkages of a particular industry with greater reliability.

The conceptual inadequacies of county and community multipliers that count commuter and inmigrant employment or other income leakages as benefits do not necessarily mean that they are seriously biased. This depends on the quantitative importance of these factors as determinants of the multipliers.

Determinants of Local Multipliers

The literature provides very little quantitative basis for predicting the range into which a particular plant and host community's employment and income multipliers would fall. However, it does provide some indication of the more important factors that may determine the size of the multiplier, some of which have been mentioned in the discussion of computational approaches. Obviously, anything that would affect immigration, incommuting or outcommuting responses to changes in basic employment would be important, since commuting and immigration impact directly on local multipliers. Multiplier determinants here include: (1) commuting responses; (2) population size of the community; (3) backward linkages to industries supplying materials or services to the plant; (4) excess capacity of the existing service sector; (5) level of employment of the local labor force and labor force of surrounding areas; (6) proximity to large urban service centers; (7) propensity to consume of the expected work force; and (8) proportion of population engaged in farming.

Determinants of commuting responses.--The only known information currently available on determinants of commuting responses is an unpublished M.S. thesis study by Johannes Van Veen (1977). Regression analysis of 1970 census data suggests that 28 percent of the increase in manufacturing employment in the previous ten years was absorbed by intercounty incommuters. Outcommuting decreased by an amount equal to 40 percent of the 1960-1970 increases in manufacturing employment (standard error = 14).

Outcommuting rates were positively and significantly associated with

increases in manufacturing employment in contiguous counties (6.7 percent of increases in contiguous counties).

Population size of community and area.--Population size has been found to be directly related to local multipliers by Braschler (1973), Gadsby (1968), and in the unpublished study of Van Veen. The probable explanations include:

1. Less incommuting to fill job vacancies as a result of a larger labor force pool in a large community;
2. A higher proportion of required raw materials, semi-finished goods and general industrial supplies and services being available in a larger and more diversified local economy;
3. A greater proportion of desired consumer goods and services being available in a larger community;
4. A significant proportion of semi-finished goods output being further processed, packaged, stored, and transported by local firms in larger communities, i.e., more industries to which forward linkages exist;
5. Larger supplies of critical labor, managerial, and technical skills requiring less immigration to fill requirements in these areas.

Most of these same explanations apply to multipliers that are generally larger for multicounty and statewide areas. Little's (1968) state level income multiplier estimates for Oklahoma manufacturing (2.92), and Collins', et al.'s (1973) estimates for Oregon manufacturing (2.61) are indicative of this relationship. Studies of impact on multicounty areas and supracounty "primary" direct impact areas indicate multipliers that are quite variable and not always higher than those computed for county areas. However, since most of the county level estimates make no allowance for increased incommuting, job shifting and decreased outcommuting, the comparisons are not very adequate. The relevant comparisons would be between these multicounty multipliers and the community estimates by Shaffer and Tweeten (1974) or by Garrison (1967) after adjustment for commuting and job shifting. In these cases, the local multipliers are generally smaller, as expected (see Table 1). County multipliers will, of course, be higher on the average than municipality multipliers, primarily as a result of lower commuting leakages. However, directly comparable estimates are not available.

Backward linkages to local industries.--While primary or basic employment is usually the largest component of total additions to employment, this is not always true. In some particular cases, the presence of a particular manufacturing industry may create a greatly expanded demand for specific locally produced goods and services. Deaton (1975), as we have noted earlier, found that primary employment in an industrial pallet manufacturing operation in Tennessee was equal to only one-third of the increased employment in logging, saw mills, and trucking required to supply and service the plant's manufacturing operation. But such linkages are often very specific to a particular plant, type of product, or even brand and model of product. Hence, empirical gen-

eralization about the quantitative importance of these linkages in particular cases is subject to very large error although they are potentially very important.

Capacity of local service sectors.--Garrison (1967) has noted that income multipliers sometimes increase more than employment multipliers, and that this occurs when outmigration has resulted in underemployment (and presumably, excess physical capacity) in the social service sector. Hence, when local employment and payroll increase, it results in greater utilization of fixed plant in the service sector, more nearly full employment of existing labor resources, greater profits and property income, but relatively little increase in service employment.[9]

Level of employment of labor force.--While employment and unemployment estimates reflect changes in employment conditions, they are poor indicators of labor supplies in rural areas where greatly different proportions of "hidden unemployed" or potential entrants into the labor market may exist, even when unemployment rates (of those actively seeking work) are similar (Stoll, 1976). In any event, where one would expect that combined hidden and "officially" unemployed supplies of relevant categories are large, employment and income impacts would generally be greater. For similar reasons, we would expect a lower incidence of nonreplaced job shifters; further, those people shifting jobs would normally have larger income increases when these conditions exist. By the same logic, if the labor force of surrounding areas is more fully employed, we would expect commuting from such areas to be reduced, thereby reducing leakages and increasing the local multiplier.

While the logic of this argument is convincing, Van Veen's (1977) study found that, in fact, the opposite result occurs. For reasons not yet isolated, there is increased incommuting associated with increased underemployment, possibly as a result of inferior general training among the hidden unemployed.

Proximity to urban service centers.--Garrison (1967) has noted that there were markedly lower income and employment multipliers in communities near large urban centers. He notes that the service sector is relatively much smaller in those communities close enough to large urban centers to permit regular travel for shopping and recreational purposes.

One would also speculate that industrial service and supply enterprises would be less likely to develop locally if they were available in nearby urban-industrial centers, especially if they were subject to significant economies of large scale. Here, again, quantitative generalization is difficult since particular industries have very unique requirements, while others have requirements that are extremely common and broad-based.

Propensity to consume of expected work force.--The Shaffer-Tweeten (1974, pp.18-19) data imply marginal propensities to consume approaching 1.0, since they state that (of $216,000 average payroll per plant) "$102,000 spills out of the county as non-local taxes and import purchases" and $114,000 is listed as county primary net income benefits (internalized). This propensity to consume seems an extremely drastic assumption unless one takes a very long-run perspective; however, this is not entirely consistent with the method used in estimating primary income spillovers. These spillovers or leakages would tend to diminish over longer periods as local service industries accommodate to increased demand and commuters become residents of the community.

In contrast to the Shaffer-Tweeten assumption, whatever its basis, Wadsworth and Conrad's (1966) data for a single plant in southern Indiana imply a marginal propensity to consume of 0.65, which they suggest is a result of both direct saving and debt retirement.

While this contrast is noted, we can offer no simple criterion whereby ex ante judgments of these propensities may be made. Such attributes as fiscal conservatism, expectations regarding permanency of employment, and other factors may explain such differences, but no evidence relating to determinants of the propensity to consume characteristics of relevant populations is known to the author.

Proportion of rural farm population.--Unreplaced job shifters, those whose prior jobs are not filled by unemployed persons, are a source of leakage in both employment and income. The direct personal income ("payroll") effects are reduced by the amount of income received on the previous job.

While shifting between other nonfarm jobs and manufacturing jobs is probably a small leakage in rural areas, shifts between farms and manufacturing jobs constitute a potentially large one. This is especially true of low-income agricultural areas, i.e., "small farm" areas; the magnitude of this factor is reflected in part by the large number of part-time and residential farms now listed in the U.S. Census of Agriculture.

The effects of shifting from agricultural jobs to manufacturing are both statistical and substantive. The employment effects are likely to be smaller than the income effects in areas of small farms since following nonfarm employment the farm resources may either be very fully utilized in part-time farm operations or may be incorporated into the operations of other farms in the area. However, small-scale farm operations are considered to be full-time employment for purposes of employment statistics, even though very poorly rewarded in terms of net income. The change in status would be reflected in employment data as a mere shift in primary employment from "agricultural" to "manufacturing" with no increase in total employment unless hired workers were employed to carry out farming operations.

While this does not invalidate the use of employment multipliers as measures of the effects of manufacturing on the number of persons employed at "something," it does mean that formerly underemployed manpower, which is more completely employed in manufacturing (and part-time farming) is not reflected in the measure. Further, in low-income agricultural areas, the computed employment multiplier values will tend to be somewhat smaller than the associated income multipliers. This view is supported by the income and employment multiplier estimates shown on Table 1, of which 17 were paired, i.e., there were both income and employment multipliers for those communities. Of these 17 paired computations, 11 had income multipliers that were higher than the associated employment multipliers.

A Summary of Evidence

From the foregoing review and comparison, the following general conclusions can be drawn with at least a moderate degree of confidence:

1. The reported multiplier statistics are based on quite heterogeneous assumptions, the varied assumptions and associated computational methods explaining a large part of the apparent variability among them.
2. Most of the estimation techniques are inappropriate for the purpose of providing a means for local communities and counties to estimate the private income and employment consequences of industrial growth for present residents. With the exception of a few studies, the estimates are excessively high.
3. In general, the short-term employment and income benefits to residents of cities and counties tend to be somewhat less than the number of people directly employed and total payroll, respectively. Both will tend to increase in the longer term.
4. The primary reason that private income and employment benefits tend to be exaggerated when various multipliers are applied to employment and payroll data is failure to make appropriate adjustments for commuting and non-replacement of job shifters. This is especially true of those shifting from farm to nonfarm jobs.

In addition, a variety of studies suggest the following somewhat more tentative conclusions:

5. Because techniques have not been found that adequately and systematically take into account the effects of size of community, population and labor force characteristics, type of industry and industrial composition of the county or community, only judgmental estimates of their effects are possible. Larger communities, with high rates of unemployment and underemployment, located at some distance from major population centers, will tend to experience the largest private income and employment impact.

6. Communities from which there has been relatively little recent outmigration will tend to have more fully utilized retail and other community services and, hence greater secondary employment and income impacts than those from which outmigration has been rapid.
7. Classes of employees using a large part of their earnings for debt retirement and savings will reduce secondary benefits. However, reliable bases for predicting rates of saving and debt retirement are not available.

Effects of Industrialization on Local Government Finances

Part of the reasoning behind local governmental investments in programs to attract manufacturing industry has involved the problem of an insufficient tax base to support local governmental services. This problem stems in part from declines in rural community population. With these declines, the physical facilities and personnel of local governmental units may operate at less than full capacity, hence, inefficiently. Beyond this, it is reasonably well-established that there are long-run diseconomies associated with small-scale operation of local governmental services. The small community can neither provide the broad variety of specialized services available in larger cities nor cost levels of larger units.

Economies Associated With Community Size

While there is no unanimity regarding the size of community required for least-cost public services, it seems evident that economies of a large scale are not exhausted by size increases up to 50,000 population; there is some opinion that communities of 200,000 are not beyond the point of maximum efficiency.11

The economies of scale issue is important. However, the variety of tax systems, incentives proferred to industrial clients, service requirements of particular industries, demands for public services by inmigrant industrial employees, existing excess capacity (if any) of local service facilities, and many other factors affect the net fiscal impact. In this brief review we can only summarize them. A much more detailed review and analysis is provided in Summers, Evans, Clemente, Beck and Minkoff (1976, pp.72-105).

That most rural communities are of suboptimum size with respect to the cost of producing a full complement of public services is obvious; 96 percent of all submetropolitan counties in the United States had less than 20,000 population in 1970, while 82 percent of all incorporated municipalities had less than 5,000 inhabitants. However, it does not necessarily follow that an increase in population will always result in economies in the provision of services in terms of their cost to the previous resident population. While costs per person may in some cases decrease, in others they may increase if the additions to pop-

ulation require more services per capita. For example, per capita fire protection costs may increase sharply as a result of a new industry requiring more sophisticated fire protection equipment and better trained fire fighters. Per capita costs for previous residents may also rise if fire protection, new streets, and other services must be provided for an industry whose employees predominantly live outside the tax jurisdiction of the municipality or county. The increase in population (and tax revenue) may be small, relative to the increased public service costs to the local government.

An additional factor determining the effect of industry on the costs and quality of public services are the structures of public utility rates and tax institutions. Many utilities have a graduated rate structure, the rate depending on volume of usage. If new water or sewer treatment systems or lines of greater capacity are required to service an industry with a large volume of usage, the added cost will be borne by previous users, as well as by the company.[12]

Industrial financing services create an additional problem. Increasingly popular devices used by local communities to recruit industry are industrial revenue bond and general obligation bond financing.[13] Both provide income tax exempt status on interest revenues for those who buy the bonds, hence reducing capital costs (interest) below usual open market rates. While the reduced interest charges do not affect municipal finanances directly, there is an impact on revenues in that the normal arrangement is for the municipal government to retain title to the industrial property under a long-term, lease-purchase agreement. During the period of the lease, the property is owned by the local governmental unit and therefore cannot be subject to a property tax. In such cases, unless the lease provides for revenues in excess of the cost of the financing (interest and ammortization), the property taxes, payroll taxes, and incidental fees and taxes paid by employees provide the only added revenues that may be used to defray added service costs. Consequently, while average costs of services per unit may decline, the cost of services to former residents may actually increase.

Evidence From Two States

Two particularly useful studies have examined the effect on costs and revenues of local government resulting from industrial expansion in local communities (Shaffer and Tweeten, 1974; Garrison, 1967). In these two studies, the analysis of impact on local government finances, with a separate analysis of school districts, covered 17 communities in Oklahoma and Kentucky. As Table 2 will show, very little uniformity exists, as the effects on governmental units depend heavily upon several conditioning factors. Among these is the tax status of industrial properties as determined by financing arrangements, and adjustments in real property appraisals to provide partial *de facto* tax exemptions (where official tax exemptions are illegal or are not politic). Tax structures such as the use of payroll taxes, local vehicle use taxes, etc. would also affect the fiscal impact as would the pattern of commuting or inmigration of workers.

Insofar as school finances are concerned, inmigrants, a disproportionate number of whom have school-age children, usually create net fiscal losses, especially if plant property is tax exempt and property taxes are a main source of revenue. In this regard, municipal and school district interests are often in conflict with county and broader area tax jurisdiction interests since plant workers create a demand for additional streets, fire protection, and other services but add little revenue if they commute. The application of the payroll tax, which appears to be coming into more common usage, is a means for coping with this problem as well as allocating the costs incident to industrial expansion to its beneficiaries to a larger degree. It appears that except for donated sewer and water main extensions, water towers for plant fire protection, etc., very little is added to public service costs by the plant itself, at least in the short run. It is the cost of services required by a larger work force and population which is the primary fiscal drain, and this can be alleviated by more general use of payroll and excise taxes.

Conclusions

As Garrison (1967, pp.196-197) states, "few generalizations can be advanced, then, regarding the primary impact of new industry on local government, except to say that both the direction and magnitude of the net benefits are determined by the particular circumstances surrounding the plant location."

However, we can say that: (1) any form of tax exemption tends to have an unfavorable immediate effect on government finances; and (2) the structure of local tax instruments can have an important impact and bearing, especially if the proportion of commuting workers is large.[14] On the other hand, the relatively small gains recorded (and the not infrequent net losses) definitely suggest that short-run fiscal improvements associated with industrial expansion, if any, will be modest in size. Just as the erosion of the fiscal base has been gradual, improvements, if any, are likely to be small and cumulative over a long period.

Effects of Industrialization on Income Distribution and Poverty

In most cases, industrial development is rationalized on grounds of improving economic conditions, especially economic conditions of unemployed or low-income people. But which classes of people benefit most (and which least) is very much an item of debate. Those who remember their history tend to reason by analogy to the sweat shops of the English industrial revolution and early United States industrial development. Great wealth was accumulated, but, some would say, at the cost of countless lives ruined or lost due to health and mechanical hazards, as well as permanent impoverishment of many millions who had no protection from the economic and political power of industrial employers.

Table 2.--Effects of Plant Locations in Oklahoma and Kentucky on School District and Municipal Net Revenues

Unit of Government and Location	Communities With Net Gains		Communities With No Change		Communities With Net Losses	
	No.	%	No.	%	No.	%
Oklahoma						
Municipal	9	75	--	--	3	25
School District	9	75	--	--	3	25
Kentucky[1/]						
Municipal	1	20	2	40	2	40
School District	4	80	--	--	1	20
County	4	80	--	--	1	20

[1/] Primary impact only.

Sources: Shaffer and Tweeten (1974).
Garrison (1967).

The industrial revolution of the United States countryside is just beginning. Can we expect a similar result? Or will the institutional protections and the greater mobility of the twentieth century insure us against such "excesses"?

General Distribution of Income

Research into the impact of industrialization on income distribution is very limited. While several studies have examined the effects of industrialization on particular classes of people, we have found only two studies that specifically address general income distribution effects from a traditional economic perspective, one by Shaffer (1974) and a very recent (unpublished) study by Beck and Smith (1977).

Of the four communities studied by Shaffer, income distribution had improved substantially in only two (Adair and Cherokee Counties) during the 1960-1970 period, during which there had been some industrialization in all areas. In Muskogee County there had been only a small improvement, while in Sequoyah County income distribution was somewhat more unequal than it had been previously.

These crude comparisons do not take into account other events that may have affected income distribution during the same period, among them the War on Poverty and Great Society programs of the Kennedy-Johnson period. Neither do they allow for any of a large number of other factors, including outmigration, which could have affected changes in income distribution. This, plus the small number of communities studied, provides little basis for generalizing any observed changes to other communities. Neither does it provide a basis for generalizing to other levels and types of industrial growth, as changes in income distribution among even these four counties are quite variable.

In addition, the pattern of change in income distribution varies among the four counties. In two counties (Muskogee and Cherokee) changes in the shares of lower income strata were very small. However, in Adair County, the lowest income quartile appeared to have gained while the highest quartile lost relatively. In Sequoyah County, the lowest two quartiles gained while the highest quartile lost relatively.

The Beck and Smith (1977) study found no significant net association between income inequality and durable goods manufacturing employment changes. In contrast, they noted a significant positive association between changes in nondurable manufacturing employment and inequality of income distribution; i.e., greater inequality occurred as nondurable employment increased.

A finding of a greater inequality of income distribution associated with industrialization might be explained by very unequal distribution of property and escalating property income as manufacturing employment increased. Alternatively, if incomes in other sectors were

quite low (particularly if a high proportion of labor force nonparticipation existed in the population) and relatively high wages were received by the minority employed in new manufacturing industries, the result would be a greater maldistribution of total income. Yet it is perplexing to find more increases in income inequality associated with the generally low-wage nondurables industries than with durables manufacturing since nondurables industries normally employ high proportions of unskilled workers, presumably including many in the low income strata.

Incidence of Poverty

We have noted only two other studies bearing directly on the impact of industrialization on income distribution. Bender, Green and Campbell (1971) and Kuehn, Bender, Green, and Hoover (1972) have devoted their studies specifically to the impact of industrial growth on poverty. Smith (1966) has noted that the problems of economic development in depressed regions of developed countries are in some ways more complicated than those of low-income countries; the absence of means by which to exclude competitors from outside the region limits available strategies of economic development.

Analogous to this point are the findings of Bender, et al. (1971), which show that immigration limits access to jobs by local unemployed persons in some areas. Apparently more qualified personnel from outside the community, either immigrants or commuters, tend to be substituted for those least qualified and most impoverished indigenous to the area. In the four areas included in their study, immigrants and return migrants accounted for 21 percent of all the holders of new jobs on the average. An additional 40 percent commuted from distances more than ten miles. Hence at the community or municipality level, industrial development, by itself, may not be a very effective short-run anti-poverty strategy. In this case, the numbers of people directly employed who were lifted from poverty to suprapoverty incomes, as defined by official U.S. government standards, were equal to only 11 percent of total plant employment.

This assessment may be rather oversimplified for two reasons. In a longer run context, the existence of opportunities for remunerative employment may provide the incentive for rural youth to better prepare for nonfarm industrial careers. Therefore, local industrialization may prevent them from becoming part of the large mass of underqualified "hard core" unemployed (or those who do not become a part of the labor force as a result of general demoralization and lack of opportunity). Also, jobs abandoned by job shifters may be occupied by less qualified people who have previously been unemployed or employed at jobs with subpoverty incomes such as full-time subsistence farming. Therefore, in the absence of data on what happens to vacated jobs, there is no obvious way to determine whether the measures of impact provided by these previous studies are serious understatements of either short-run or long-term secular alleviation of poverty.

The Beck and Smith (1977) study is based on aggregative data. One might expect that it would capture some of the indirect effects of industrialization on poverty; that is, it might reflect instances of persons at or below the poverty level replacing nonpoverty level persons who have vacated other jobs in order to accept industrial employment. However, Beck and Smith found no significant association between changes in poverty and changes in durable manufacturing employment. More significantly, they found actual increases in the incidence of poverty to be associated with increases in nondurable employment.

It is especially difficult to understand the processes by which the introduction of higher wage manufacturing employment, or of any positive change in employment opportunities whatever its category, could increase the incidence of poverty. At most, we can only conclude that the data provide further evidence supporting the view that industrialization will not automatically and unequivocally reduce poverty. As with most programs that are regarded as panaceas, their effects depend heavily on other factors, many of which are not very completely comprehended.

Living Costs of Fixed Income Groups

Aside from the direct effects of increased industrialization discussed above, other impacts may be totally obscured if straightforward application of poverty income standards is used. For example, the purchasing power of those on fixed incomes may be affected by increases in demand for various goods and services as the employment and incomes generated by new industry increase. If, for example, the demand for labor increases, the cost of consumer services is likely to rise. People on fixed incomes such as retirees may indeed find their level of living reduced as the average for the community expands, even when money income increases slightly. In Summers and Clemente's (1973) study in Hennepin, Illinois, increases in incomes of household heads over 65 years of age was only $420 over the period 1965-1970, compared with an increase of $2,436 for non-aged family heads. Obviously, a very modest increase in costs of services could cause a negative effect on real purchasing power of these aged people. Over this particular period, the consumer price index (base period 1967) rose from 94.5 to 116.3, approximately 23 percent. Thus an increase in income of household heads over 65 from the actual level of $2,560 to $3,151 ($591) would have been required to offset the general level of inflation. Any increase in the consumer price index above this general trend would have resulted in a net decrease in levels of living.

Applicable Employment Multiplier Concepts

The recognition of income distribution and poverty as issues raises a further question regarding the requirements for meaningful employment multipliers. There is unquestionably a positive correlation

between employment growth and per capita income growth. Yet an issue noted earlier in connection with multiplier statistics gains added significance in this context.

As we observed, the relevant population to be included in the multiplier estimates is the target population of the investment and promotion program. When policies are being formulated at local levels, the "target population" would be the existing resident population making the decisions or passively accepting them (and absorbing the costs). But if, as appears to be unquestionably true, the incidence of poverty is closely related to unemployment (and labor force nonparticipation resulting from job shortages), the focus on employment of resident populations becomes even more pertinent. And this means that the types of employment multipliers that have meaning are those that reflect accretions to employment of formerly nonworking populations, especially those in poverty.

If this is accepted, relevant multiplier statistics are those that take into account: (1) increases in incommuting, (2) decreases in outcommuting (for purposes of employment), and (3) nonreplacement of job shifters. These leakages must be consistently and carefully computed for the political jurisdiction for which the investigation is being conducted and policy formulated, regardless of its size--community, county, region or state. Unfortunately, these types of employment multiplier statistics are not currently available, especially at municipality or county levels. Neither are they available at regional or state levels, but the magnitude of the errors introduced by failing to account for these leakages is much smaller for large areas than for small ones.

PART II

HOW INDUSTRIAL DEVELOPMENT AFFECTS RURAL SOCIAL AND POLITICAL SYSTEMS*

In Part I, an important question was raised regarding whether industrial development will mean that rural people and their communities become dominated politically by external industrial interests. The possibility that industrial growth may bring with it the ills of modern urbanism was also posed as part of that broad question, "What will industry do for us or to us?" Answers to these questions take one beyond the concerns of market economics. While it is important to study the effects of rural industrial development in economic terms, the overall analysis is incomplete without reference to social and political impacts. Social trends may be slower-moving and more difficult to record and analyze than are economic changes, but their effects are far-reaching and must be considered by planners concerned with community well-being. Indeed, these changes may have more pervasive long-term impacts on community development than the more tangible and immediate income and employment effects.

Organizational Perspective

Increasing Systemic Relations

Roland Warren (1972, p.53) maintains that "the 'great change' in community living includes the increasing orientation of local community units toward extra-community systems of which they are a part, with a corresponding decline in community cohesion and autonomy." The local community units to which he refers include individuals, families, voluntary associations, business, and government groups--indeed all types of social organizations found within communities.

The "extra-community systems" include all business and governmental oraganizations with units in more than one community. But they also include political parties, labor unions, churches and voluntary civic, fraternal, and professional associations. Typically these extra-community systems reach into the local community to: (1) obtain a product or raw material; (2) sell a product; or (3) provide a service. It is easy to comprehend the extra-community character of these large complex bureaucracies, for they are universally present in American communities. It is not so obvious that the "extra-community systems" that penetrate the local community also include the farmer's relation-

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*Part II was drafted principally by Dr. Gene Summers, with assistance from his associates as indicated.

ship to the grain or livestock market, the sports fan's attention to the progress of the World Series, public interest in TV portrayals of the latest fashions in clothing and car models, or youthful devotion to the latest music idol molded in Nashville. Yet cultural and value systems that have diffused throughout society also are a product of the increasing orientation to extra-community systems.

Bureaucratization

The rational, planned, bureaucratic structure and impersonal nature of many extra-community systems is important to note in the context of industrial development, especially where that takes the form of establishing a branch plant of a company with multiple locations. The organizational form of such firms is the bureaucracy, which evolved as a solution to the difficult problems of an organization with multiple goals and a complex internal division of labor. These problems include co-ordination of work, setting of priorities, defining authority to make decisions, recruiting and training labor, and labor turnover. The ties between the local unity of a bureaucracy and its "home office" are clearly defined by contract, charter, legislation, or administrative regulations. Decision-making authority flows from top to bottom. Although administrative styles may vary from autocratic to consultative, local units are encouraged, admonished or coerced to perform the tasks that contribute to the goals of the parent organization.

Division of Labor

The appearance and spread of bureaucracy as a form of social organization is an outcropping of a more encompassing process. Structural differentiation is one of the most important mechanisms by which a social system undergoes technological and economic development. It is the basic process of social change whereby a society, region, or community evolves from a social structure organized along rather simple principles to one characterized by complex organization. Although technologically induced structural differentiation affects many areas of social organization, it is nowhere more apparent than in the alteration of the industrial and occupational structures, specifically in the division of labor. The proliferation of products encourages the formation of new industries, the most recent major development being the growth of the service industries. At the same time there occurs a specialization of work, as tasks are broken down and simplified. This one observes on the assembly line and in the "office industries."

Change in the composition of the industrial and occupational structure is of great importance because it has significant consequences for other aspects of social organization. The system of social stratification becomes increasingly dependent on the occupational structure as a mechanism for the distribution of rewards (Faunce and Smucker, 1966; Lipset and Zetterberg, 1956; Turner, 1966). There seems to be a shift

from ascribed criteria for status allocation to a more achievement-oriented reward system. Increasingly, social prestige, as well as economic benefits, is linked directly to occupational roles.

Transfer of Functions

While there may be an increased total participation in the wage and salary portion of the labor force, it is often truncated at both ends of the age distribution with virtually no workers under 18 or over 65. Both factors affect the family. On the one hand, increased labor force participation and employment means more income for families with workers in the "productive" ages; at the same time, it also means some services and activities once performed in the household must be purchased or carried out external to the household. Therefore, the changing character of the occupational structure creates pressure to shift some functions from the family to profit enterprises, other social groups and government.

On the other hand, persons outside the age limits of the labor force become a "dependent" population whose economic situation may be worsened (Summers and Clemente, 1973). The presence of a growing able-bodied adult population that is age dependent strains the existing system of welfare and challenges the values and assumptions that support it. The premise that one's right to consumption must be justified by one's production becomes less defensible in the face of large numbers of would-be workers who are denied access to employment because of their age. This situation generates pressures to further shift the functions of providing for the unemployed, aged, handicapped, sick, and dependent persons from the family to government, organized insurance and retirement funds, etc.

Changing Values

Work is a major source of an individual's interests, values, attitudes, and personal contacts that shape social participation. As the occupational and industrial structures become differentiated, the basis of social participation shifts from locality-oriented groupings to specialized interest groups. Physical proximity loses its domination of social activities; with its declining importance there is a shift from primary to secondary group relations. Persons spend much of their time interacting with people in tightly circumscribed areas of interest or work where little knowledge of each other as persons is required, or even desired. Such patterns of social participation increase the probability of role conflicts for individuals and even for the community. They undermine the informal social control mechanisms.

These conditions are associated with various forms of deviance, crime, and psychological impairment. Although the precise causal linkages between industrial and occupational structures and symptoms of social pathology are not fully known, the epidemiological evidence is undeniable.

It is the investment of external capital in a local economy that constitutes the primary force in rural industrial development. Its consequences for the community will depend heavily, but not solely, on the size and nature of the labor demand it generates. As noted in Part I, in those areas where labor demand has been declining over a long period of time, decades perhaps, it is reasonable to assume that much of the surplus labor will have abandoned the area. In such communities, new jobs may produce a sharp increase in population resulting from immigration of workers. This may be the result when either the required volume of available labor or requirements for skilled labor cannot be supplied locally. Thus, in rural communities, new industry often generates population growth. And the additions to the population are generally younger and better educated than the resident population (Beck, et al., 1973; Summers, et al., 1976).

The processes and changes sketched in this section are well-documented trends describing the transformation of America from a rural to an urban society. We are a society dominated by advanced technology with an extreme division of labor and giant supporting bureaucracies. Urbanism is the modal way of life where functions once performed by families, neighbors, and ad hoc groups now are the domain of large-scale private economic enterprise or government. Thus, communities are increasingly bound to extra-community systems.

Even though these are the circumstances of American society, as is true of most industrial nations of the world, these circumstances do not destroy communities. Their structures and functions may be altered, the nature of relations among local groups and between individuals may be modified, and their autonomy may be diminished, but people continue to live their lives in towns, villages, cities, and neighborhoods. It is within these territorial systems that national and regional policies and programs must be judged for their efficiency and effectiveness. It is here that jobs, education, medical services, mutual support, meaningful social participation, and all the other items in the civilization catalogue must be delivered in full realization of the complex nature of communities in contemporary society.

In this organizational perspective, rural industrial development is a further encroachment of extra-community systems into the community social system. Clearly there are other penetrations of the local system by vertically structured organizations--government, banking, retail and wholesale firms, service organizations, the mass media, and many more. But industrialization is especially important because it has great potential for setting in motion forces of change capable of transforming the local community. Some of these transformations may be desired and some may be unwanted. Understanding them in order to develop a planned strategy for change is the intellectual challenge.

Trading Local Autonomy for Resources--Changing Power Relations

Communities have need for resources that may not be available locally or at least are in short supply. Often they are identified in specific terms: jobs, customers, mortgage money, growth capital, a supermarket, a health clinic, a new high school, road improvements, increased public revenues, less taxes, more creative leadership, more young working-age people, and so forth. Traditionally, economic growth, especially manufacturing, has been favored as the means for bringing these resources to communities. There is considerable evidence to support the strategy of community economic development to enrich the local resource base, although the process is not as simple as once presumed (Summers, et al., 1976).

It is less often noted that resources are attracted to a community at a price. The trade-off, or price, is more pervasive and subtle than the dollars spent on packaging and selling an industrial park, or even lost taxes due to incentives offered to industrial prospects. Greater resources within the community often are purchased with reduced degrees of freedom in decision-making by local citizens, business owners, and public officials. In short, communities trade local autonomy for resources.

Such trades may be equitable or they may not. The desirability and wisdom of trading local autonomy for resources is a situationally specific matter subject to the judgments of the participants who are aware of the implications of alternative courses of action. In this section we will call attention to some of these implications.

Resources Gained

Capital is an important resource that new industry brings to the local community. It can be invested in several ways: purchase of land, buildings, equipment, raw materials, goods and services, including labor. These investments in the local economy are presumed to have a stimulating effect on employment and income, both of which have already been examined in considerable detail in Part I. Briefly, new capital provides employment opportunities for local community people and business opportunities for local retailers, wholesalers, service establishments, and materials suppliers. By expanding the tax bases in the local community--income (payroll), property valuation, and sales--it provides additional revenue to local units of government, although not necessarily more than is added to their costs (Summers, et al., 1976; Shaffer and Tweeten, 1974).

New industry also brings non-economic resources to the local community. Largely through the personnel that the industry imports, the community receives new organizational skills, technical knowledge, and social and political attitudes. In short, new industry imports cultural, social, and political innovations into the community. Such non-economic re-

sources may be seen as adding "new blood" or "new life" to the community, but they are not received with unequivocal enthusiasm by all members (Summers, 1973).

Cultural importation from the larger society was the major focus of Vidich and Bensman's (1958) study of "Springdale," a small rural community in upstate New York. The village of some 1,000 people was the trade center of a rural community of approximately 2,500. Springdale had no industry, but nearly one-third of the employed commuted to industrial jobs in nearby towns. About a third were farmers and farm laborers and the remaining third worked in the village. The authors note that Springdale is connected with the "mass society" in a variety of different ways, which permits the continuous flow of outside policies, programs and social trends into the community. These include socially visible agents such as the extension specialist who resides in the community for the explicit purpose of influencing it. There also are local representatives of state and national business, government, and service organizations, especially the locally resident "heads." Newcomers, particularly those who have resided for some time outside the community, are also carriers of cultural diffusion.

Local Autonomy Lost

These newly acquired persons and the positions they hold are non-economic resources that also are agents of social change. Often the change influence is unintended and unanticipated. Whether intended or not, agents of social change and cultural diffusion imported by new industry represent both new resources and an incremental loss of community autonomy.

The added resources brought to the community by industrial growth encroach upon the political autonomy of the local system. Political autonomy is never absolute but refers to the degrees of freedom the local units have to make the decisions in matters affecting the immediate and long-range future of the community. New industry is not alone in encroachment. As we noted earlier, the increasing orientation of communities to extra-community systems is a prominent feature of contemporary America. Therefore, industry's encroachments on local political autonomy in exchange for its resources does not make it unique; however, the fact that encroachment upon local autonomy is shared does not make it less true or less real in its consequences.

Corporate Involvement in Community Affairs

A recent study by Seiler and Summers (1977) describes three strategies used by the management of one large manufacturing firm to protect its interests in the local political arena. The first strategy, the one preferred by the corporation, is unilateral action. That is, the management makes decisions and executes actions without consulting local leaders or citizens even though their activity affects the future of

the community. For example, their decision to hire workers from a "labor shed" with a radius extending 50 miles from the plant resulted in 83 percent of their workers residing outside the county containing the plant site. Naturally, this reduced the secondary "growth effect" of the new industry within the county and local community. Whether the effect was desired by local citizens or was wise for the community's well-being is debatable, but their inability to participate in the decision-making is undeniable.

Another strategy used was co-optation, which is a process of incorporating powerful persons or groups from the community into the corporate decision-making process. Thus, no fewer than five of the county's reputed leaders became employees, consultants, or contractors with the manufacturing corporation. These relationships enabled the company executives to communicate discretely with local leadership, hearing its views informally and privately offering their own.

Finally, when threats to company interests were imminent, the corporation management moved to intervene publicly in the local political process. This strategy was used sparingly but effectively in the case reported by Seiler and Summers (1977). By intervention, the company persuaded the local school board to delay and modify a school construction bond referendum before submitting it to a vote, where it was passed as modified.

These strategies for corporate involvement in community affairs are understandable as behaviors of a large formal organization with multiple goals and complex environments that often present competing demands on the organization. Managers of multiple location firms must monitor and respond to changes in the multifaceted institutional environment while maintaining the internal unity of the organization. In addition to the local community's demands, the firm's environment includes such factors as market conditions, relations with distributors, labor supply and "price," conduct of suppliers of materials, equipment and services, state and national regulations. There is considerable flux in all these elements of the organizational environment.

Given the various and potentially conflicting environmental demands, it is understandable that corporations strive to limit environmental input into their internal affairs. The consequences of allowing increased input are to intensify conflicting demands and to decrease organizational flexibility. Larger corporations operate in a very diverse set of environments. Therefore, larger firms might be expected to be relatively unreceptive to outside demands of particular community organizations and governmental units. Rather, it is to a business organization's advantage to manipulate environmental elements instead of making internal adjustments whenever the costs of doing so are less.

What from a business organizational perspective may constitute discrete and skillful management may appear to the local community as an infringement upon the democratic process, secrecy, or deceit. Regardless

of the validity of local public opinion, it is clearly the case that corporate involvement in community affairs implies some degree of reduced local autonomy.

Further evidence of declining power of the local community is provided by a recent study of locational instability of manufacturing firms in Iowa (Barkley, 1976). Locally owned firms were found to have a higher rate of "failure" than absentee-owned, multiple location firms. However, branch plants were more likely to leave the community. The outmigration rate of branch plants was found to be higher than the failure rate of locally owned plants with the result that losses of plants were quantitatively more attributable to the locational instability of multiple location firms. Moreover, it was found that the stability of operations of absentee-owned firms was more sensitive to short-run market fluctuations than locally owned ones. This suggests that when business conditions get tight, the multiple location firm uses its diversity as an adaptive mechanism by shifting work among its locations and perhaps closing some. While this speaks well for the superior organizational longevity of multiple location firms, it also points to the limited ability of the local community to control or influence decisions made by absentee owners of industry that influence longevity and employment stability of branch plants.

Escalation of Dependencies

While communities vary in the extensiveness of their integration into and dependence upon extra-community systems for needed resources, no community can escape the reality of being linked to "outside" influences. We have noted that one aspect of the impact of new industry is decreased local autonomy due to decisions being made by corporate management located outside the community that affect life in the community. There is still a further implication regarding diminished local autonomy.

New industry speeds the escalation of local dependency on state and Federal aids. All local governments are restricted by state statutes in the manner and extent to which they may raise revenues. Partially because of legislative constraints, local governments appeal to state and Federal governments for transfers of funds back to the local level. Intergovernmental transfer payment schemes devised as a response to such requests generally incorporate formulas reflecting local needs and local taxing efforts.

Industrial expansion may be expected to affect the volume of these transfer payments through several cash flow streams. Two of the most important are personal income and industrial output, which are subject to state and Federal taxes, a portion of which is rebated to the local community in which they originate. New industry also may affect the volume of intergovernmental transfer payments by adding to the costs of local government and thereby increasing the local unit's claim to state and/or Federal aids.

Seven case studies unanimously support the hypothesis that industrial development is associated with an increase in transfer payments (Summers, et al., 1976). These findings suggest that industrialized communities come to depend on state and Federal payments for a larger share of their total receipts. Since agencies providing financial aids to local governments virtually always require local compliance with one or more conditions or restrictions on their use, the increased dependency also means a further erosion of local autonomy.

Industry Means Structural Change

Occupational Structure*

Moore (1966) argues that economic modernization affects the organization of the occupational structure in five basic areas: (1) market participation; (2) sectoral relocation; (3) work specialization; (4) occupational upgrading; and (5) bureaucratization. It should be stressed, as it is by Moore, that these areas are conceptually interrelated, although they are discussed here in terms of discrete concepts.

Market participation refers to the creation of a hired or salaried force, and to the increasing proportion of a society's population actively involved in this work force. However, one should note that participation by very young and very old persons likely will decrease as development occurs.

Sectoral relocation is the shift observed in developing regions in the distribution of workers among industries.[15] Specifically, during development, there is a decline in the proportion of labor in agricultural and an increase in the manufacturing and service sectors of the economy. Sector reallocation can be viewed as resulting primarily from two factors. On the supply side, advancements in agricultural technology increase per unit output, thus freeing labor for nonagricultural employment. Second, the growth of industry results in a demand for labor to fill newly created industrial occupational vacancies.

Work specialization is similar to the concept of "division of labor" discussed by classical economists. It is the process by which functional tasks are broken down and simplified into smaller units of work (Wilensky and Lebeaux, 1958). In other words, the impact of structural differentiation upon the occupational structure is one of promoting a change from the "specification of function" to the "specialization of function" (Weber, 1947,p.225). In the former, the individual worker unites several different skills to produce goods, whereas in the latter

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*This section is based upon an unpublished manuscript of Elwood B. Beck (Department of Sociology, University of Georgia) and Gene F. Summers, "Industrial Development and Change in Occupational Structures."

several different workers, each with specialized skills, combine efforts to create a product--a product that owes its existence to no single worker. In this process of work specialization, new occupational identities may be generated.

Occupational upgrading refers to the tendency in developing regions for a shift in proportions of the work force toward nonmanual occupations in nonagricultural sectors of the economy. There is also a growth in the number of semi-skilled and skilled types of employment (Faunce and Form, 1969). This upgrading is the result of machines replacing men in those types of activities that are uniform and repetitive. Thus, automation reduces the demand for unskilled labor, and increases the demand for more highly trained and specialized labor.

Bureaucratization is a process by which there is a decline in the proportion of the labor force earning their economic livelihood in their own businesses or shops, and an increase in the proportion of those working for others. In other words, it represents a growth in the prevalence of the employee-employer relationship, and a subsequent increase in the dependency of the worker on the employer for continued economic well-being (Wilensky and Lebeaux, 1958). Bureaucratization is due largely to the increase in the relative number of large-scale production organizations in the economy.

The importance of Moore's (1966) discussion of changes in occupational structures for analyses of rural industrial development lies in his deliniation of those features of the occupational structure serving as links to other aspects of social structure. To understand how these features are affected by rural industrial development, one must set aside the evolutionary social change perspective that places growth of technology in the position of primary cause and traces the historical patterns of societal change. The industrial development of rural areas within an industrially advanced society is a matter of importing, or transplanting in the countryside, a technology that already exists within the broader social system of which the rural area is a part. Similarly, the presumed consequences of industrialization as an historical process are accomplished facts within the society as a whole. What is needed, therefore, is an explication of the social, institutional, and economic mechanisms that produce the spatial distribution of economic activity. The free-market economy model, which rests on the proposition that in the long run the competitive system will lead to an optimal spatial patterning of economic activity, is a useful first approximation to that need, although it is not beyond the pale of criticism.

Spatial distribution of economic activity.--In an evolving industrial economy, it is assumed that industries locate in regions having the greatest comparative advantages for production and marketing, including those that result in economies of scale and agglomeration. If the market for the products of the dominant economic activity in a particular region is reduced, or if there is a change in the optimal mix of factors of production, as occurs through technological innovation in agricul-

ture for example, the equilibrium of the system will be maintained by spatial mobility of labor and capital. Where the region possesses advantages for another type of industry, it is assumed that there will be an inflow of capital to take advantage of the available labor. If no such advantage is present within the region, labor will migrate to areas where it is needed. Hence, local or regional unemployment, and underemployment, is seen as a short-run disequilibrium that would be corrected through factor mobility in a freely competitive economy.

The free-market spatial equilibrium model rests on several assumptions that the economic history of the United States has not validated (Smith, 1972). The factors of production are not perfectly mobile spatially as the model assumes. Similarly, the assumptions of perfect competition, complete knowledge, and economic rationality do not hold entirely true in the real world. Further, the ability of the firm to externalize some of its costs (to make the public at large, other firms, or governmental units bear a part of them) is assumed not to exist. Conversely, it assumes that costs of other firms, individuals, and governmental units cannot be shifted to the individual firm.

Interventionist policies.--Recognition of these limitations of the free-market model has led to governmental intervention, particularly at the Federal level, with the goal of making the price mechanism work more effectively. Programs of education, job training, relocation assistance, and financial inducements were initiated to increase the mobility of labor. The solution to the spatial mismatch of labor demand and supply was first pursued along the lines of moving surplus labor to places of higher demand. Such efforts paralleled powerful economic forces encouraging concentration of economic activity and population in metropolitan areas (Summers and Beck, 1972). Thus, market forces acted jointly with interventionist policies to lubricate the mechanisms of labor mobility. These have resulted in massive concentrations of labor in urban areas to such an extent that over-urbanization is viewed as being causally linked to many "social problems."

An obvious second solution to the limitations of the free-market model, and the resultant spatial disequilibrium of labor demand and supply, is to promote the mobility of capital. Again, this has been encouraged through governmental interventionist programs such as accelerated depreciation allowances, small business loan programs, and de facto tax exemptions effected through municipal bond financing of plant construction, equipment, and site preparation. It is the investment of capital in a non-industrial region that constitutes the primary force in rural industrial development, regardless of whether it is achieved through market forces or interventionist policies.

The consequences of an inflow of capital for the structure of occupations will depend heavily upon the nature and size of the labor demand it generates. Presumably, it adds to the existing labor demand. Whether or not this results in an increase in market participation is indeterminant without reference to the labor demand and supply within the region as it has been conditioned by historical events.

In those areas where labor demand has been declining over a long period of time--several decades--it is reasonable to assume that much of their surplus labor will have migrated out of the region. However, there is generally a lag in this labor transfer, which means that a region probably will have some degree of underemployment and unemployment, especially in categories with limited industrial skills, limited developed capacity to absorb training in these skills, or in aged groups with limited opportunity for continued use of them. In such a region, increasing the labor demand will have only a moderately positive effect on the rate of market participation because the increased demand can be supplied only by the existing surplus possessing usable skills or trainability and by labor that migrates into the area. But the greatest increase in market participation of previously resident local population may be anticipated when the increase in demand follows a recent and sharp decline. In this situation, a lag in labor mobility will cause the region to have high rates of unemployment and underemployment.

Sex composition of labor force.--The sex composition of the increased labor demand also will influence the rate of market participation. The greatest increase in market participation will occur when there is a sex balance in the increased demand that corresponds closely to the balance in local supplies. If supplies of unemployed and underemployed males are limited, availability of jobs for females will bring females into the labor force, many of whom will be secondary wage earners. Where the increased demand is solely or largely for male workers, the effect on employment and labor force participation will be determined by recent history of outmigration and fluctuations in demand as noted above.

However, when the increased demand is largely for female workers, the effect on rates of unemployment or underemployment is likely to be positive. There are two reasons for this rather counter-intuitive effect of increased female labor demand on rates of unemployment. First, where the female worker is a second wage earner in the family whose husband is underemployed or unemployed, the family may delay a decision to migrate. Also, many females entering the labor market in response to an increase in demand will be doing so for the first time; i.e., they will be new entrants into the labor force. Finally, labor turnover is generally higher among female workers than among men. Consequently, women who leave the labor market after a first entry are subsequently considered to be unemployed at best for a few months where before they were not. Thus, increased demand for female labor without a similar increase for male labor is likely to increase the overall rate of unemployment as measured by the Labor Department, even though the number of persons employed increases.

Effects of Sectoral Relocation

The movement of capital into an area, which increases the demand for

labor in a type of industry not previously represented in the industrial structure, will result in sectoral reallocation. In the case of rural areas, where agriculture has been the dominant industry, the addition of almost any industrial activity will produce a shift in the occupational structure, reducing the relative importance of agriculture.

Where the occupations represented in the "new" industry require greater educational preparation and technical skills than the modal category of existing occupations, one may anticipate occupational upgrading to occur. Obviously, when the skill levels of the new demand exceed the training of the existing labor force, or the volume of demand in these skill categories cannot be supplied by local labor, an immigration of skilled labor will result or, when feasible, training programs will be introduced to upgrade skills. In any event, the effect on the occupational structure is one of general upgrading.

The experiences of general industrialization and modernization indicate a strong trend toward bureaucratization of the occupational structure, i.e., a shift from self-employed, self-managed labor to wage and salaried workers. The same pattern may be expected to a somewhat reduced degree during industrial development of rural areas. There are at least two reasons for this shift. One is the higher productivity and rate of return for labor in the salaried and wage labor categories of the occupational structure, as compared with that of many marginally successful self-employed adventures. These self-employed occupations attract large numbers of workers because of their independence and self-direction, but lack the classical advantages of functional specialization or division of labor.

Second, where increased labor demand is heavy and results in an immigration of labor, consumer demands may create a sufficiently large market, particularly in retail trade, so that additional corporate capital is attracted to the area. Because of its ability to actualize economies of scale, such capital drives local entrepreneurs to seek employment for salary and wages. However, there is one category of nonagricultural self-employment that may increase--service industries, which are difficult to standardize and therefore have limited economies of scale, may attract local entrepreneurs and demonstrate an increase while other types of self-employment are declining.

Specialization within the occupational structure (expansion of the number of distinct occupations) has several sources according to Moore (1966): increased size of interdependent economic and other social units; technological changes; and the creation of new products and services. To some extent all of these sources of specialization are stimulated by the addition of new capital within a rural region, particularly when the capital investment takes the form of a large, technologically sophisticated manufacturing plant generating a demand for labor in occupations alien to the existing occupational structure. However, one must note that where there is sectoral relocation, the change in specialization may be slight, at least in the short run. This is so

because, as with sectoral relocation, it is likely that a few occupations are "closed out" while new ones are being added elsewhere in the occupational structure.

Population Changes*

One of the common predictions about the introduction of industry into small towns is that it will slow or reverse the decline in population that most rural areas have suffered. Fifty-eight studies document changes in population size in towns, counties, and regions after industry became established (Summers, et al., 1976, Chapter 4).

In a clear majority of cases, the host community grew. In all others, population was at least stabilized. No reports showed further population decline following a new plant location.

The initial source of population growth appears to be increased immigration coupled with unchanged or decreased, not halted or reversed, outmigration. This is noteworthy because it is contrary to the popularly held belief that more industry will eliminate the need for people to leave their hometown in search of work--especially young people.

It is important also to note that the majority of immigrants moved no farther than 50 miles. Those who moved farther often were managerial and technical personnel. This is significant because it speaks to the effectiveness of industrial location as a technique for achieving a greater urban-rural population balance.

As one might expect, the amount of population growth is a function of the size of the new plant work force. However, often the employment growth potential of the new work force with regard to the residents of the host community is weakened by the commuting behavior of non-metro industrial workers, as noted in Part I. Home-to-work trips in excess of 50 miles were not uncommon. And intercounty commuting was the rule in many cases. However, in the long run many workers do appear either to move closer to their work or change jobs (cf. Summers, et al., 1976, p.33-37).

Employers prefer younger workers, although in some instances skill gained through experience may be competitive with youth. This fact has a direct bearing on the finding that non-metro industrial workers have larger households than the local area residents generally (Andrews and Bauder, 1968; Beck, et al., 1973; Christiansen, et al., 1959; Kaldor, et al., 1964; Osborne, 1959; Sizer and Clifford, 1966). Being younger, they are more likely to be in the child bearing and child rearing stages

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of the family cycle. The implications of this for future population growth and for the demands for education and other services are quick important but generally unattended.

There is virtually no evidence that new industry increases the level of educational attainment in the host community. Where it does occur, the evidence suggests it is due to changes in the age structure, although younger adults generally complete more years of schooling. Thus, the presence of industrial employment opportunities does not appear to motivate more than a few persons to further their educational attainment even though in many instances educational opportunities are available locally (cf. Summers, et al., 1976, pp.44-46). While the evidence is for fairly short-run periods in which the demonstration effects of enhanced opportunity resulting from increased education may be smaller than over longer run periods, there appears to be no rigorous evidence of these positive effects on educational attainment.

Structure of Farm Operations*

As a whole, farmers can expect little direct benefit from industrial development in their own communities, especially commercial farmers. The two major sources of benefits are the increased possibility of off-farm work and capital gains that may result from a substantial rise in land values. However, capital gains can be realized only by selling the land. In the meantime, the farmer must pay the higher taxes that result from the greater value of land.

The higher price for labor and the greater availability of employment within easy commuting distances are likely to have the greatest effects on farmers of any of the forces exerted by industrial development. These effects will be mixed, depending on the sector or segment or agriculture considered.

Commercial farmers are faced with decisions concerning off-farm income that affect farm organization. The first important consideration is that more work off the farm is usually full-time work. Fewer part-time or off-season jobs are available to farmers. Increasingly, those seeking work off the farm must be willing to take full-time employment. Thus, farming is forced into the part-time category, resulting in great pressure for the reorganization of the farm businesses, particularly in those farms in the lower range of the commercial segment that now provide nearly full employment.

Labor-intensive enterprises are dropped as off-farm work increases. Enterprises such as dairy, poultry, and beef are reduced or elimi-

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*This section was written with the assistance of Uri Mendelberg (Department of Sociology, University of Wisconsin-Madison).

nated; there is an increase in crop harvesting, fertilizer application, and other services.

Operators of smaller farms may obtain full-time work off the farm while continuing their farming operation, at least for some time. At first, they may continue their farming operation as is, then begin to change by dropping various enterprises and by hiring more labor. Finally, as they become familiar with nonfarm work and are better able to realize job satisfaction and a good income or feel relatively secure in their nonfarm employment, they are likely to quit farming completely, although they may continue to live in a rural area (Scott, 1968).

For the continuing commercial farmers, the higher wage rate and tighter labor market mean a higher cost for hired labor and a more accelerated reorganization of their businesses in the same trend that has existed for some time--greater substitution of capital for labor. This also means that grain farming, where capital substitution has been the greatest, will receive still greater emphasis.

Changes toward more off-farm work by farmers are likely to increase conflict between landlords and tenants regarding leasing arrangements and the tenants' use of their time. The greatest conflict will be between tenants and landlords whose farms are large enough to fall into the low end of the commercial farming segment, but may not be large enough to continue as a single operating unit without additional income from the tenant. Conflict is also likely to increase on farms with livestock leases (Scott, 1968).

Operators who are fully employed with good incomes on farms of medium to large size which do not hire much extra labor are the least likely to change farm operations or to be attracted by off-farm jobs. Large farms are more likely to make adjustments in operations because they hire substantial amounts of labor. A higher labor wage will probably slow down the trend to larger farms unless new labor-saving technologies are invented or developed (Scott and Chen, 1973).

There is some evidence that under the impact of industrialization income has increased for smaller farms and decreased for larger farms. Moreover, the total income in the farm sector has increased (Scott, 1968). Most of the increased income to the farm sector during industrialization, other than capital sales of land, comes from off-farm wage sources.

Alternatives to the Traditional Approaches*

In both Part I and Part II of this report we have pointed out that the effects of industrialization on rural areas, both economic and non-economic, are varied. They depend on a variety of economic and institutional circumstances. It was noted that many of the employment and income benefits to local residents of rural communities leak out and reduce the cost-effectiveness of industrial development in terms of raising incomes of local people, decreasing poverty, reducing unemployment and improving the distribution of incomes among local populations. In fact, it was noted that some very recent evidence suggests that industrialization has adverse general effects on the incidence of poverty and the distribution of income. However, the processes involved are not well understood and these latter observations cannot be regarded as definitive.

It was also observed that a variety of questions may be raised regarding the long-term social and political effects of industrialization on rural areas. Loss of social cohesion, depersonalization of human relations, and replacement of the family as a primary functional social unit are consequences. The provision of security, support for the aged, protection against economic calamity, and other nominally "welfare" functions become transferred to impersonal external agents whenever industrial development and general modernization occur. Specialization of work roles carries with it greater potential productivity and earnings, but also makes the population and its governing bodies more and more dependent for their welfare on the operation of market and nonmarket forces that are external to the community. The price of greater short-term growth in affluence may be the loss of direct control over precisely those processes affecting both economic and non-economic dimensions of human welfare most in the long run.

Among the more frightening possibilities for local communities is the loss of local autonomy, especially when absentee-owned branch plants of large corporate businesses are involved. This potentially impinges on the capability of the community and its citizens to use the economic potentials of industry and community investments for the purposes of upgrading its human resources and improving the economic opportunities of its citizens beyond present levels. The impoverished conditions of many of the nation's rural areas, which have had tremendous wealth in natural resources, are illustrative of this. They provide mute festimony in support of the hypothesis that the presence of large incomes and wealth within a community does not assure affluence for the rank and file of its citizens. Neither does it assure good schools, good medical service, cultural amenities, or other attributes that we gen-

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*This section has been drafted by Eldon Smith and has not been reviewed by Gene Summers. Hence, it may or may not reflect consensus views.

erally identify with the welfare of a population. But what can be done to improve the situation so that greater benefits to local citizens will result if industrial development takes place?

Exceptionally little literature is available that explores such alternatives or even conceptualizes them. It seems obvious that, if most of rural industry were "home grown and home owned," some of the conflicts between community and corporate objectives would be reduced and the potential for reinvestiment of profits in the community would be enhanced. However, the objectives of even locally owned and operated plants are not necessarily less subject to conflict with goals of the population at large; further, the dangers of loss of autonomy by the majority are not necessarily less with locally owned firms than with absentee-owned plants. And many absentee-owned plants have policies that are generally beneficial in terms of upgrading the economy and quality of life in the community. Further, casual observation suggests that the problems of competing with large integrated organizations with large-scale research and development units, national distribution and procurement systems, and easy access to national financial markets make the independent, home-grown industry a doubtfully feasible venture except in special cases. General observation also leads to the conclusion that these tend to be either highly standardized, technologically simple products that can be contracted with national distributors or highly differentiated products with geographically limited markets.

The employee-owned company or the community-owned and controlled venture, such as those initiated under the Community Development Corporation (CDC) framework (with its governmental supports), has its own appeal above and beyond the merit of being locally owned and controlled. Specifically, to some degree, both harmonize community and business interests. Deaton's (1975) study of a Community Development Corporation is one of the few touching even peripherally on these organizational alternatives to the standard program of attracting private industrial investment; that is, of overtly selecting industries with high degrees of linkage to other sectors of the local economy and/or those which can utilize types of unemployed manpower present in the community.

If welfare program costs can be reduced and/or tax revenues increased significantly by introduction of enterprises employing the "hard core" unemployed, then community, state or even national subsidization may be fully justified as being in the interest of taxpayers--if such programs are successful. This is a dimension of the problem that has largely been ignored in the available literature. However, it is ironical that the CDC studied by Deaton did not survive much beyond the date when his article was published, and another CDC venture not far distant from it, which appeared to be something of a success story, has had difficulty surviving despite heavy subsidization of labor through training grants. Potential political interference, such as nepotism, patronage and other factors, is a potential problem whenever responsibility and authority for managerial decisions are relatively diffused. It is especially true when those without relevant

business experience assume responsibility for policy decisions as members of the board of directors. Under these conditions, it seems likely that the need for high-level managerial competency may be underestimated. Beyond this, unless integrated into market-wide distribution and production systems enjoying the economies of scale of large-scale corporate business, such ventures suffer all of the inherent disadvantages of other independent home-grown business enterprises.

There is no literature, not even historical case studies, that provides very useful insight into workable means whereby the financial survival powers, bargaining power, distribution efficiencies, and research and development economies of multi-plant integrated corporate businesses can be emulated in organizations that more dependably harmonize business and community welfare interests.

Finally, there is the problem reflected in the discussion of local income and employment multipliers in Part I--leakages of employment and income benefits to regions outside the immediate community. This problem has virtually nothing to do with the broader social issues discussed in this section; rather, it primarily has to do with the organizational vehicles, including units of government, that assume responsibility for industrial development decisions. At present we know of no attempt to share among units of local government in the affected areas the costs and the risks entailed in industrial park or utility investments that have as their purpose attracting industrial investment. So far as we know, the multicounty governmental units, such as Area Development Districts, have been unable to institute cost-sharing arrangements for these industrial investments that are in any way comparable to the joint solid waste disposal and fire protection systems now operative in several areas. Until this is done, there is a priori a convincing argument that incentives for making such investments will be reduced; further, if local community interests are accurately reflected in their decisions, local communities will tend to underinvest in industrial inducements. However, until more precise measures of the magnitude of the benefits occurring to each local community can be developed, it will be exceedingly difficult to develop satisfactory cost-sharing criteria.

Footnotes

1/ Many case examples of local efforts can probably be found in fairly early American history, especially in New England. And the active promotion of manufacturing industry was viewed as an essential element of the strategy for gaining fuller independence from the British and, more generally, the European powers. Yet widespread efforts of this type by local governments and civic organizations mainly emerged after World War II, if for no other reason, because expansion of civilian goods production had been very sporadic in the 1920s and was never sufficient to fully utilize fixed plant capacity during the 1930s.

2/ Hansen and Munsinger (1972, p.76) report that approximately 14,000 local (nongovernmental) industrial development groups existed in 1972.

3/ See, for example, Summers, Evans, Clemente, Beck, and Minkoff (1976, p.55). They report that manufacturing employment grew five times as rapidly between 1960 and 1970 in non-metropolitan as compared with metropolitan areas.

4/ Some attention will be given to longer run considerations but the research information linking long-run growth to these short-run impacts is virtually nonexistent. In fact, even theoretical literature has left this area virtually untouched except for fragments that have only suggestive value.

5/ For the benefit of readers not trained in economics it should be explained that the multiplier expresses the ratio of total income or employment generated as a result of all of these effects to the direct incomes of employees (and owners, if local residents). An income multiplier of 1.5 means that the total is 50 percent greater than the direct income. An employment multiplier of 1.5 means that the total of in-plant jobs and jobs created in other sectors is 50 percent greater than plant employment. Output multipliers may also be computed relating the change in value of output in one sector to the change in total value of output in the entire regional unit, whatever its size or bounding criteria. However, these are not very widely used and their interpretation is often very difficult with respect to matters of policy.

6/ In theory, if the export or basic component of each industry including service industries is empirically identified there should be no such disturbances except for reporting errors. However, in fact, techniques for making such allocations are not highly reliable. The so-called location quotients technique, which is based on a com-

parison of regional (or community) production with national consumption per capita for the product(s) of the particular sector, has obvious limitations when applied to small areas. For example, if a particular plant belongs to a four-digit SIC for which national consumption is, say $5.00 per head, this would suggest that all local production up to $5.00 per head should be considered as nonbasic. However, for very specialized items, especially components of goods manufactured in final form elsewhere, the industry may in fact be entirely "basic", with none of its output being used locally. In addition, climatic, cultural and other differences may make location quotients inapplicable if based on national data.

The minimum requirements technique, while often discussed, is seldom used and will be omitted here. Its limitations are no less severe than the location quotient. See Isard (1960, pp. 122-126) for more detailed discussion.

7/ It should be noted, however, that the examples used are illustrative only for industries and agriculture with these particular characteristics. Braschler (1973) and Adams and Holloway (undated) find some multipliers for other activities that exceed those in agriculture.

8/ There is an apt analogy between these two sets of computations and demand studies based on cross-sectional and time series data, the former reflecting longer term adjustments to secular relative price differences among commodities (see Braschler, 1973, pp. 23-27).

9/ The impact measure used by Shaffer and Tweeten is not precisely the same as a conventional multiplier. It includes costs and benefits to municipal governments and school districts as well as the more conventional elements of internalized plant payrolls and secondary and indirect income. However, the net benefits or losses to these public sectors are small, no more than 3 percent of primary income. Hence, the measure approximates a multiplier quantitatively although conceptually somewhat dissimilar.

10/ It should be pointed out that this suggests a possible source of upward bias in the application of input-output techniques when the coefficients are derived from average utilization per unit output of large aggregates or from communities that are growing. Economic base ratios for similar rural areas may be preferable in such cases.

11/ Morgan (1973, p. 6), in summarizing the evidence on economies of scale in the provision of urban services, notes that it is generally unsatisfactory; he says that "although present measurements of optimum city size are crude, they rule out both very small and very large cities." He concludes that on the basis of evidence provided by Niles Hansen (1971), Werner Hirsch (1968), and others that optimum "may be somewhere between 50,000 and one million, and more likely between 200,000 and 750,000."

12/ Recent changes in policies by the Federal government require that increased capital costs as well as operating costs must be borne by the user in direct proportion to volume of use. These policies apply to all facilities that are built or modified using government grants or loan funds. Thus, since compliance with EPA regulations, population expansion, and similar factors make capital improvements in these facilities necessary in most cities, it seems probable that the effect of the regulation will be fairly widespread in the near future. This may be a short-term hardship to industrial recruiting efforts, but will obviate the shifting costs of industrial users with large outputs of waste or high water usage to smaller scale users.

13/ Industrial Revenue Bond financing has now been severely constrained by government regulations. A maximum of $5,000,000 loan and $5,000,000 total capital outlay during a six-year period is the upper limit for eligibility. General obligation bond financing is much more cumbersome, competes directly with public facility construction for availability of bonding capability, and if bonding capability under existing tax rates is deficient, requires additional levies sometimes requiring voter authorization through referenda.

14/ Local sales taxes, franchise taxes, fees for services and the like make up a significant portion of revenues in some areas and are more or less directly related to employment and local business volume. Therefore, tax exempt status on plant, land, and equipment does not mean that there are no accretions to public revenue. Thus the significance of "tax holidays" in whatever form with respect to property does not imply total local tax immunity and will vary with the relative importance of each type of taxes. (See Summers, et al., 1976, pp. 84-89, for more elaborate discussion.)

15/ Sectoral "relocation" as used by Moore (1966) is roughly equivalent to "reallocation" as used by economists, or at least implies a change in proportions of laborers among industries.

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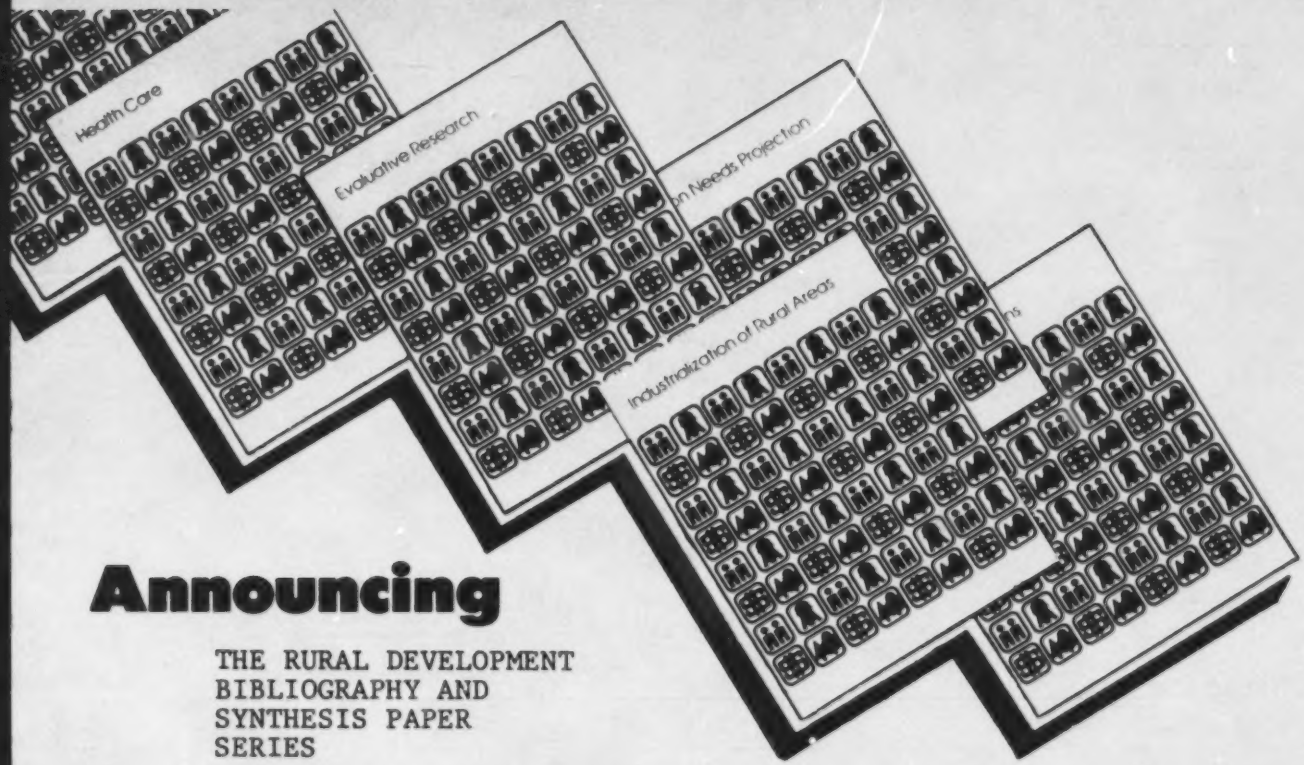

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Rural Development Synthesis Series No. 1A September 1978